

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is requested. Claims 1-3 and 6-28 are in this application. Claims 4 and 5 have been cancelled. Claims 1, 3, 7-9, 11-13, 16-20 have been amended. In addition to the amendments discussed below, the claims have been amended to alternately recite the present invention. Claims 21-28 have been added to additionally recite the present invention.

The Examiner objected to claims 11, 16, and 18 due to informalities. Claims 11 and 16 have been amended to incorporate the language suggested by the Examiner. Claim 18 has also been amended, and is believed to remove the Examiner's objection.

The Examiner rejected claims 1, 6-8, 17-20 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art FIG. 1 in view of Bell (U.S. Patent No. 5,930,340). For the reasons set forth below, applicant respectfully traverses this rejection.

Claim 1 recites:

"a status encoder comprising:
 "a first pair of wires;
 "an encoding circuit connected to the first pair of wires, the encoding circuit to receive a battery status message, and simultaneously output a plurality of tones to the first pair of wires that represent a battery status as indicated in the battery status message, each tone representing a different battery status condition; and
 "a high-pass filter connected to the encoding circuit via the first pair of wires."

In rejecting the claims, the Examiner pointed to control cable 130 shown in applicant's prior art FIG. 1 as constituting the first pair of wires required by claim 1,

and controller 126 shown in applicant's prior art FIG. 1 as constituting the encoding circuit required by claim 1. The Examiner noted that controller 126 outputs battery status information to control cable 130, and argued, citing page 5, lines 15-30 of applicant's specification, that controller 126 outputs the battery status information as a plurality of tones.

However, from what can be determined, the cited section of applicant's specification does not teach or suggest that battery status information is output by controller 126 as a plurality of tones. Specifically, page 5, lines 16-26 of applicant's specification recites:

"To prevent a total loss of power, the status of battery 120 is continuously monitored. As noted above, controller 126 can output status signals that indicate, for example, whether power supply 114 or battery 120 is providing a voltage to the second pair of wires 110, whether or not battery 120 is charged or needs charging, and whether or not battery 120 needs replacing.

"Controller 142 receives the battery status signals from controller 126, and passes the status information along to the central office as necessary. As a result, when battery 120 begins to fail and needs replacing, the condition can be detected and the responsible party notified before total battery failure results."

Thus, from what can be determined, the cited section of applicant's specification does not teach that battery status information is output by controller 126 as a plurality of tones.

The Examiner further argued that any signaling by controller 126 can be read to comprise a plurality of tones. Applicant notes that applicant's specification teaches that control cable 130 "has a number of wires, such as seven, that provides battery status information from controller 126 to ONT 132." (See page 4, lines 20-22 of

applicant's specification.) One skilled in the art would understand that the logic state (i.e., the presence or absence of a voltage) on an individual wire could be controlled to represent one of two battery status conditions.

One skilled in the art would not understand applicant's specification to teach that the wires can be grouped together and read as a digital word seven bits long. This is because a digital word seven bits long would allow for 2^7 or 128 different battery status conditions. One skilled in the art would not incur the additional expense and complexity to provide 128 different battery status conditions because 128 different battery status conditions are approximately 10X more battery status conditions than are needed.

Thus, when the Examiner argues that any signaling by controller 126 can be read to comprise a plurality of tones, applicant understands the Examiner to argue that when, for example, the voltage on a wire changes from a logic low to a logic high to indicate that the battery status has changed from one condition to another, the rising voltage signal can be deconstructed into (or represented by) a plurality of sine waves with different frequencies. As a result, applicant understands the Examiner to have read the plurality of sine waves with different frequencies to be the plurality of tones.

Amended claim 1, however, requires that each tone (a single sine wave with a single frequency) represents a different battery status condition. Thus, even if the rising voltage signal on an individual wire can be deconstructed into a plurality of sine waves that each have a different frequency, each of the plurality of sine waves does not represent a different battery status condition.

Instead, the plurality of sine waves with different frequencies (read to be the plurality of tones) when reconstructed to form the rising voltage signal represent only one battery status condition. Thus, since applicant's admitted prior art does not teach

or suggest that controller 126 outputs a plurality of tones that represent a battery status where each tone represents a different battery status condition, claim 1 is patentable over applicant's admitted prior art in view of Bell. In addition, since claims 6-8 depend either directly or indirectly from claim 1, claims 6-8 are patentable over applicant's admitted prior art in view of Bell for the same reasons as claim 1.

Claim 17 has been amended and recites:

"a status decoder circuit having:
 "a first pair of wires;
 "a decoding circuit connected to the first pair of wires, the decoding circuit to simultaneously receive a plurality of tones from the first pair of wires, and output a battery status message that represents a battery status as indicated by the plurality of tones, each tone representing a different battery status condition; and
 "a high-pass filter connected to the first pair of wires, the high-pass filter to block a DC voltage from the first pair of wires."

In rejecting the claims, the Examiner pointed to controller 142 shown in applicant's prior art FIG. 1 as constituting the status decoder required by claim 18. However, as noted above, applicant's admitted prior art does not teach or suggest that controller 126 outputs a plurality of tones (to controller 142) that represent a battery status where each tone represents a different battery status condition. As a result, claim 17 is patentable over applicant's admitted prior art in view of Bell. In addition, claim 18, which directly depends from claim 17, is patentable over applicant's admitted prior art in view of Bell for the same reasons as claim 17.

Claim 19 recites:

“placing a DC voltage on a pair of wires; and
“superimposing a plurality of tones on the DC voltage on the pair of wires, the plurality of tones representing a status of a battery, the battery switchably providing a voltage to the pair of wires, each tone representing a different battery status condition.”

In rejecting the claims, the Examiner pointed to control cable 130 shown in applicant's prior art FIG. 1 as constituting the pair of wires required by claim 19, and appears to point to battery 120 shown in applicant's prior art FIG. 1 as constituting the battery required by claim 19. The Examiner also pointed to charge control circuit 122 shown in applicant's prior art FIG. 1, and argued that charge control circuit 122 may couple or uncouple the battery voltage to the subscriber line.

Applicant notes, however, that charge control circuit 122 shown in applicant's prior art FIG. 1 does not couple the voltage of battery 120 to control cable 130 (which was read by the Examiner to be the pair of wires), or uncouple the voltage of battery 120 from control cable 130. Thus, since applicant's admitted prior art FIG. 1 does not teach or suggest coupling and uncoupling the battery voltage to and from, respectively, control cable 130, claim 19 is patentable over applicant's admitted prior art in view of Bell. In addition, since claim 20 depends directly from claim 19, claim 20 is patentable over applicant's admitted prior art in view of Bell for the same reasons as claim 19.

The Examiner rejected claims 2-5 and 9-11 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art FIG. 1 in view of Bell as applied to claims 1 and 6-8, and further in view of DeCramer et al. (U.S. Patent Publication No. 2002/0041676). However, as noted above, since applicant's admitted prior art does

not teach or suggest that controller 126 outputs a plurality of tones that represent a battery status where each tone represents a different battery status condition, claim 1 is patentable over applicant's admitted prior art in view of Bell. As a result, claims 2-3 and 9-11 are patentable over applicant's admitted prior art FIG. 1 in view of Bell and further in view of DeCramer et al. for the same reasons that claim 1 is patentable over applicant's admitted prior art FIG. 1 in view of Bell. As noted above, claims 4-5 have been cancelled.

The Examiner rejected claims 12-16 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art FIG. 1 in view of Bell as applied to claim 1, and further in view of Dhara et al. (U.S. Patent No. 6,879,582). However, as noted above, since applicant's admitted prior art does not teach or suggest that controller 126 outputs a plurality of tones that represent a battery status where each tone represents a different battery status condition, claim 1 is patentable over applicant's admitted prior art in view of Bell. As a result, claims 12-16 are patentable over applicant's admitted prior art FIG. 1 in view of Bell and further in view of Dhara et al. for the same reasons that claim 1 is patentable over applicant's admitted prior art FIG. 1 in view of Bell.

New claim 21 recites:

"a status encoder having:
 "a first pair of wires;
 "an encoding circuit connected to the first pair of wires, the encoding circuit to receive a battery status message, and output a single tone to the first pair of wires that represents a battery status as indicated in the battery status message; and
 "a high-pass filter connected to the first pair of wires, the high-pass filter to block a DC voltage from the first pair of wires."

As noted above, when the Examiner argues that any signaling by controller 126 can be read to comprise a plurality of tones, applicant understands the Examiner to argue that when, for example, the voltage on a wire changes from a logic low to a logic high to indicate that the battery status has changed from one condition to another, the rising voltage signal can be deconstructed into (or represented by) a plurality of sine waves with different frequencies. As a result, applicant understands the Examiner to have read the plurality of sine waves with different frequencies to be the plurality of tones.

New claim 21, however, requires that the encoding circuit output a single tone (a single sine wave with a single frequency). Thus, since a voltage rising from a logic low to a logic high is not a tone, and the Examiner appears to have read a deconstructed rising voltage to be a plurality of tones, there is nothing in applicant's admitted prior art that teaches or suggests outputting a single tone that represents a battery status. As a result, new claims 21-24 are patentable over applicant's admitted prior art.

New claim 25 recites:

"a status decoder circuit having:
 "a first pair of wires;
 "a decoding circuit connected to the first pair of wires, the decoding circuit to receive a single tone from the first pair of wires, and output a battery status message that represents a battery status as indicated by the tone; and
 "a high-pass filter connected to the first pair of wires, the high-pass filter to block a DC voltage from the first pair of wires."

Thus, new claim 25 recites that the decoding circuit receives a single tone that represents a battery status. However, since a voltage rising from a logic low to a logic

high is not a tone, and the Examiner appears to have read a deconstructed rising voltage to be a plurality of tones, there is nothing in applicant's admitted prior art that teaches or suggests receiving a single tone that represents a battery status. As a result, new claims 25-26 are patentable over applicant's admitted prior art.

New claim 27 recites:

“placing a DC voltage on a pair of wires; and
“superimposing a single tone on the DC voltage on the pair of wires, the tone representing a status of a battery, the battery switchably providing a voltage to the pair of wires.”

Thus, new claim 27 recites superimposing a single tone that represents a battery status on a pair of wires. However, since a voltage rising from a logic low to a logic high is not a tone, and the Examiner appears to have read a deconstructed rising voltage to be a plurality of tones, there is nothing in applicant's admitted prior art that teaches or suggests superimposing a single tone that represents a battery status. As a result, new claims 27-28 are patentable over applicant's admitted prior art.

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Thus, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

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